Space Weather Forecast

Issued on Wednesday, 07 December 2022 at 00:46 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Chance of Moderate class activity throughout. Chance of Minor Geomagnetic Storm G1 days 1 or 2 (7-8 Dec).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been low over the past 24 hours, with one small common-class X-ray flare observed. There are seven sunspot regions on the Earth-facing side of the Sun, with the disc dominated by a large region in the southeast which, despite its size, remains stable. The remaining spots on the disk have shown little growth and remained relatively stable.
There is no evidence of any Earth-bound Coronal Mass Ejections (CMEs) in available satellite imagery.
Solar Wind / Geomagnetic Activity: The solar wind speed showed a gradual decline from Elevated to Slow-Low levels in the period. The number of particles in the solar wind showed a similar decline to background counts. The important north-south component was generally weak. Resultant geomagnetic activity was Quiet throughout (Kp 0-2).
Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is forecast to remain at Low levels, with occasional Common-class flares. There is a daily Chance of isolated moderate-class flares, perhaps most likely from the two largest sunspot regions. However, the complexity of the current sunspots has not been reflected in their observed flare activity. No significant regions are expected to arrive or depart in the next four days.
Solar Wind / Geomagnetic Activity: No Earth-directed CMEs feature in the current forecast. Solar winds are in gradual decline. Enhancement of winds is expected later on Day 1 (7 Dec) or day 2 (8th) upon the arrival of coronal hole fast winds. Winds expected to ease by the end of the period as this influence wanes. Geomagnetic activity is expected to remain Quiet (Kp 0-2) during the next 12-18 hours with a chance of Unsettled intervals (Kp 3). Active intervals (Kp 4) likely from late Day 1 with a Chance of G1/Minor Storms spanning into Day 2 (8-9 Dec). Activity then expected to return to Quiet on day 3 or 4 (9th/10th) as connection to coronal hole fast wind weakens.
Energetic Particles / Solar Radiation: No solar radiation storms are expected given the observed lack of even modest X-ray flares.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2022. All Rights Reserved.

Met Office

Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	40	40	10	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	40	40	40	40
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2022. All Rights Reserved.